

SPECIFICATION FOR APPROVAL

承 認 書

Description : **Piezo Siren**

Kingstate Part No. : **KPSM5500-5V**

Customer's Model No. : _____

Specification No. : **DOD-3400**

Number Of The Edition : **1.3**

| CUSTOMER'S APPROVED SIGNATURE | | |
|-------------------------------|--|--|
| | | |

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| Approved by | Checked by | Issued by |
|--------------------|--------------------|----------------------|
| <i>Jkl 052623'</i> | <i>Jkl 052623'</i> | <i>Jan 2023.5.26</i> |

SPEC SHEET REVISION RECORD

成品承認書修訂記錄

| DRAWING NO. :DOD-3400 圖 號:DOD-3400 | | P/N: KPSM5500-5V 料 號: KPSM5500-5V | |
|---------------------------------------|------------------|--------------------------------------|--|
| REVISE DATE 修訂日期 | APPLICANT 提出者 | Version 版次 | Revise 修訂記錄內容 |
| 2022/7/6 | Sean | 1.1 | 1. 製作規格書 (Create specification) |
| 2023/2/14 | Sean | 1.2 | 1. 修改音壓、耗電流、尺寸、重量 (Modify SPL, current consumption, dimension, weight) 2. 修改外觀尺寸圖 (Modify appearance drawing) |
| 2023/5/26 | Sean | 1.3 | 1. 修改尺寸 (Modify Dimension) 2. 修改外觀尺寸圖 (Modify appearance drawing) .加入產品包裝圖 (Add packing drawing) |

A. SCOPE 範疇

This specification applies piezo indicator, **KPSM5500-5V**

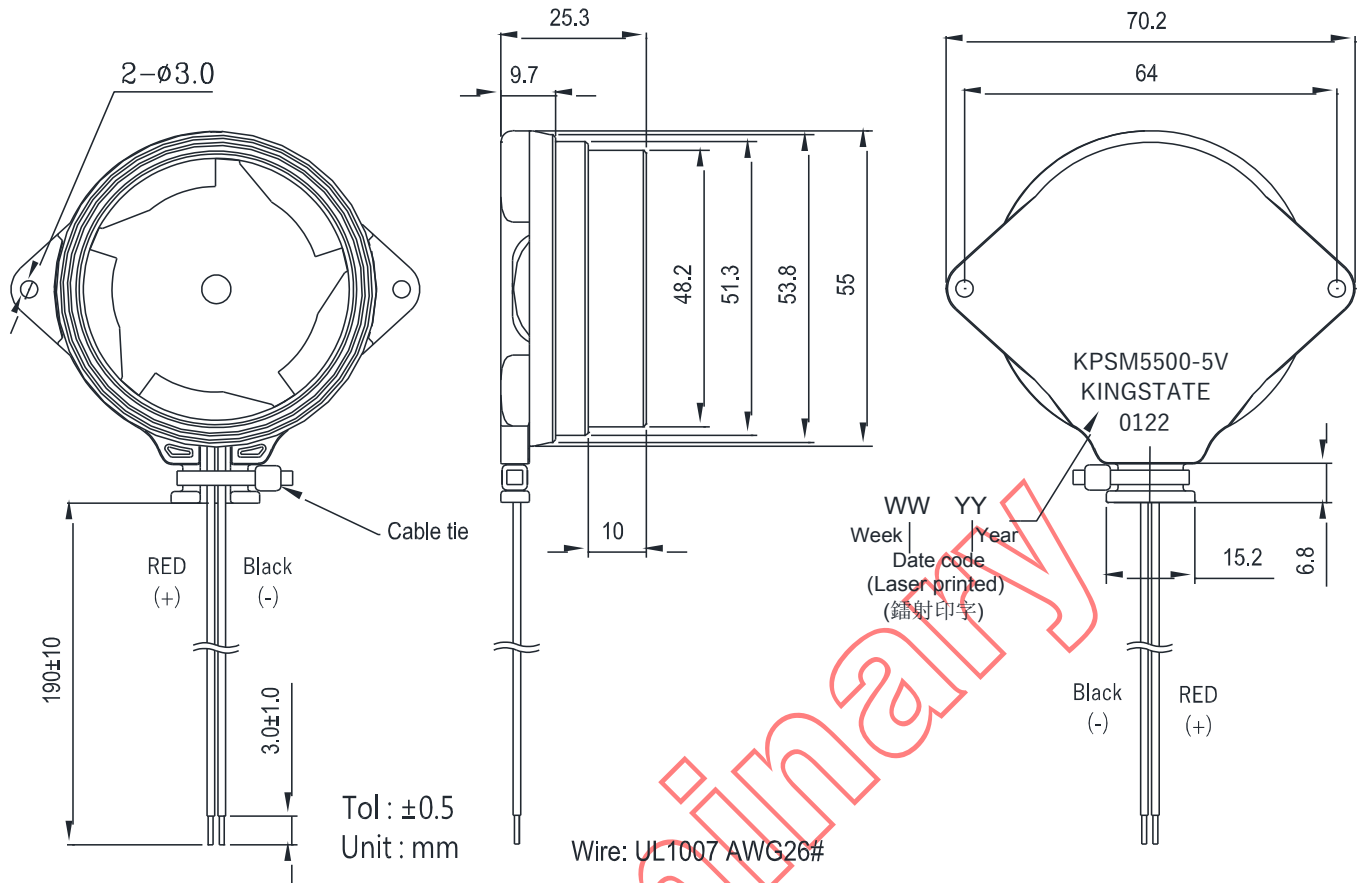
此規格書適用於壓電式蜂鳴器, **KPSM5500-5V**

B. SPECIFICATION 規格

| No. | Item | Unit | Specification | Condition |
|-----|--|------|---------------------------------|---|
| 1 | Operating Frequency 操作頻率 | KHz | 2.3~3.1 | |
| 2 | Operating Volt 操作電壓 | VDC | 3.3~5.5 | |
| 3 | Rated Voltage 額定電壓 | VDC | 5 | |
| 4 | Tone 聲音 | | Siren | |
| 5 | Sound pressure level 輸出音壓 | dB | MIN 105 | At 30 cm/ 5VDC Averaging type: Liner (5sec) In Full-Anechoic Chamber |
| | | | Min 95 | At 100 cm/ 5VDC Averaging type: Liner (5sec) In Full-Anechoic Chamber |
| 6 | Current consumption 消耗電流 | mA | Max 120 | Measure by Chroma 62015L-60-6 at 5VDC |
| 7 | Operating temp. 操作溫度 | °C | -40~+85 | |
| 8 | Storage temp. 儲存溫度 | °C | -40~+85 | |
| 9 | Dimension 尺寸 | mm | $\phi 55.0 \times H25.3$ | See appearance drawing 請參照外觀尺寸圖 |
| 10 | Weight (MAX) 重量 | gram | 28 | |
| 11 | Material 材質 | | PBT+30%Glass UL-94V0 (BLACK) | |
| 12 | Terminal 端子 | | Wire type | |
| 13 | Environmental Protection Regulation 環保法規 | | RoHS 2.0 | Piezo electronic device is exempted from RoHS2.0. Lead contain restriction (escape clause 7C-1). 產品符合 RoHS2.0, 但陶瓷面含鉛部分, 屬 RoHS 豁免條款 7C-1. |
| 14 | Dustproof and waterproof level 防塵、防水等級 | | IP67 | IEC standard 529 edition 2.0(1989) IEC 標準 529 第二版(1989) |

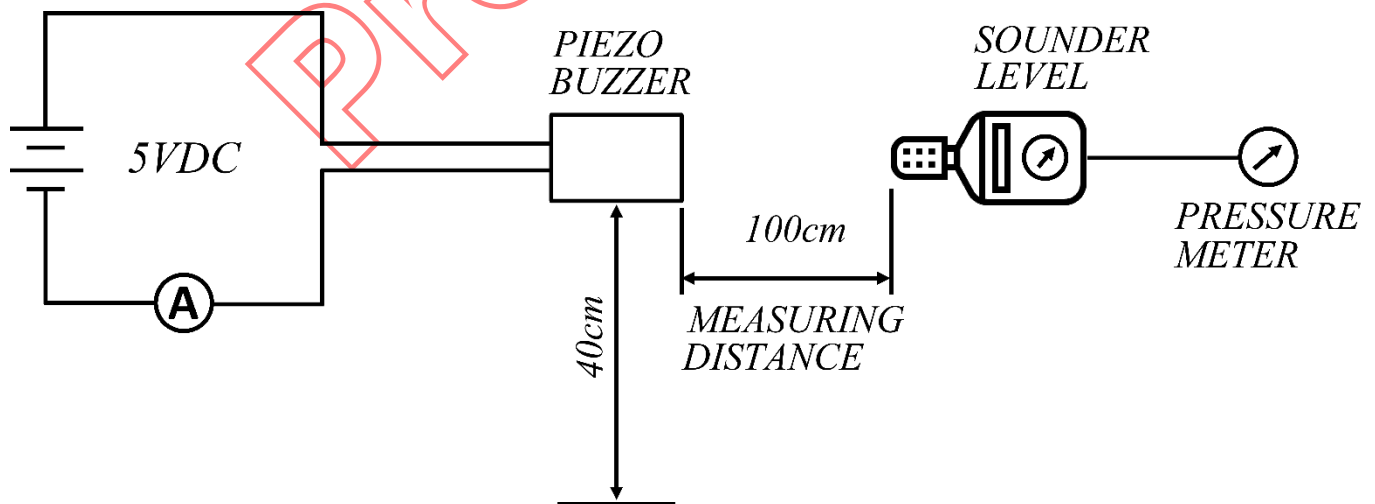
Core: D-C2

C. APPEARANCE DRAWING 外觀尺寸圖



D. MEASURING METHOD 測量方法

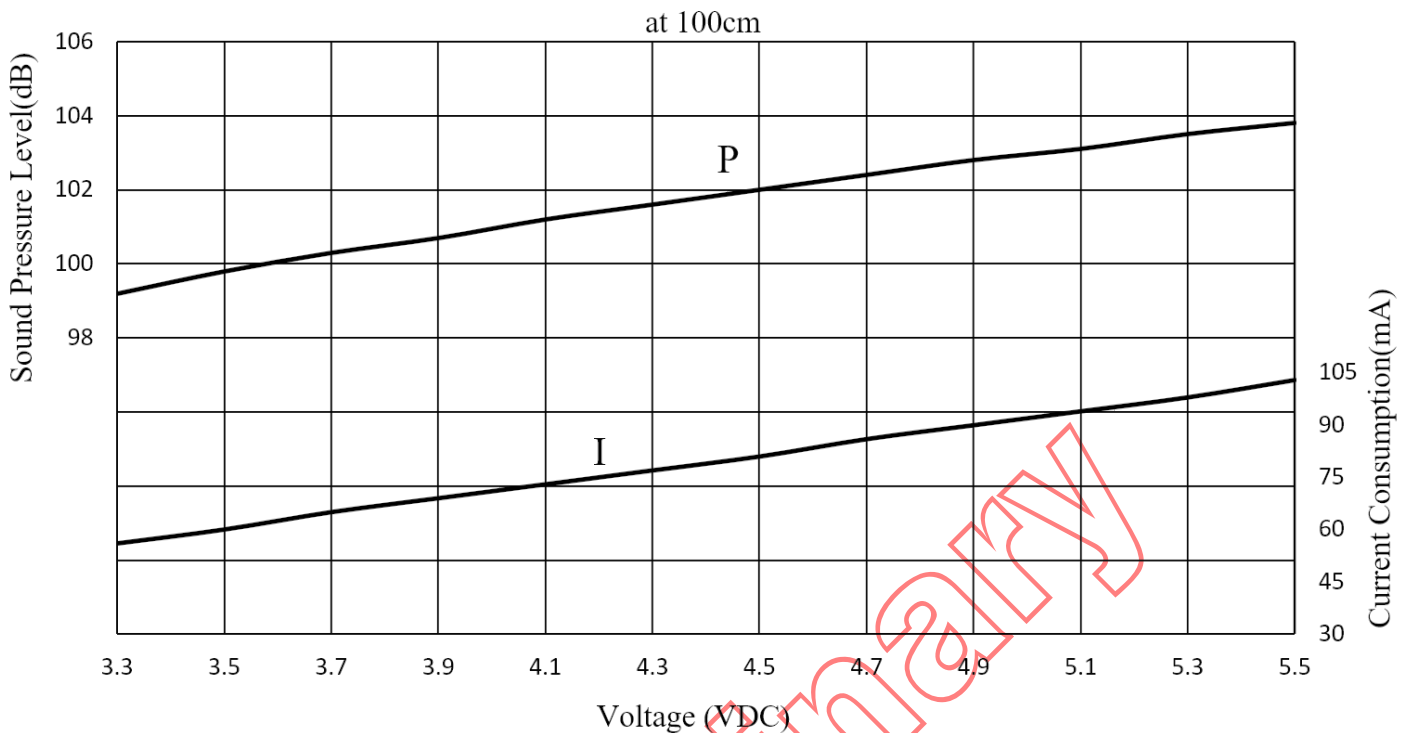
1. S.P.L. Measuring Circuit 音壓測試接線圖



Mic : RION S.P.L. meter UC30 or equivalent
 Mic : RION 噪音計 UC30 或同等品

E. VOLTAGE: SOUND PRESSURE LEVEL / VOLTAGE: CURRENT CONSUMPTION

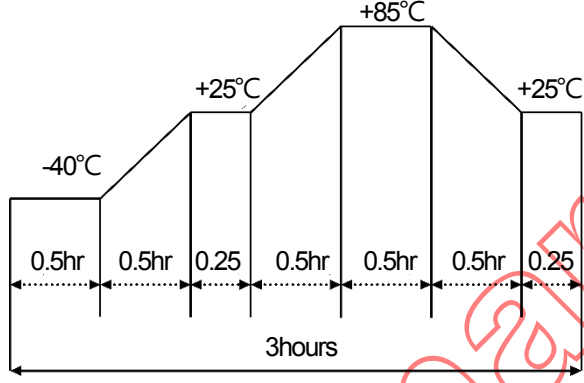
CHARACTERISTICS 電壓與音壓/電壓與耗電流之特性



F. MECHANICAL CHARACTERISTICS 機械特性

| No. | Item | Test Condition | Evaluation standard |
|-----|--------------------------------------|--|--|
| 1 | Solderability 焊錫附著性 | Lead terminals are immersed in rosin for 5 seconds and then immersed in solder bath of $+270\pm 5^{\circ}\text{C}$ for 3 ± 1 seconds. 端子部份浸入松香溶液 5 秒後,再浸入 $+270\pm 5^{\circ}\text{C}$ 熔融焊錫槽中 3 ± 1 秒. | 90% min. lead terminals shall be wet with solder. (Except the edge of terminal) 浸入端子部份附著焊錫 90% 以上.(末端斷面不算) |
| 2 | Soldering Heat Resistance 焊錫耐熱性 | Lead terminal are immersed up to 1.5mm from sounder's body in solder bath of $+300\pm 5^{\circ}\text{C}$ for 3 ± 0.5 seconds or $+260\pm 5^{\circ}\text{C}$ for 10 ± 1 seconds. 距離端子根部 1.5mm 的位置,浸入 $+300\pm 5^{\circ}\text{C}$ 的焊錫槽 3 ± 0.5 秒,或 $+260\pm 5^{\circ}\text{C}$ 的焊錫槽 10 ± 1 秒. | No interference in operation 操作上無任何不良. |
| 3 | Terminal Mechanical Strength 端子強度 | The force 10 seconds of 9.8N (1.0kg) is applied to each terminal in axial direction. 各端子的軸方向施以 9.8N (1.0kg) 的力量 10 秒. | No damage and cutting off 端子不鬆動, 不脫落. |
| 4 | Vibration 振動試驗 | Buzzer shall be measured after being applied vibration of amplitude of 1.5mm with 10 to 55hz band of vibration frequency to each of 3 per-pedicular directions for 2 hours. 振動週波數 10~55HZ、全振幅 1.5mm 於 X.Y.Z 3 個方向,各 2 小時. | The value of oscillation frequency/ current consumption should be in 10% compared with initial ones. The SPL should be in $\pm 10\text{dB}$ compared with initial one. |
| 5 | Drop test 落下測試 | The part only shall be dropped from a height of 75cm onto a 40mm thick wooden board 3 times in 3 axes (X.Y.Z). (a total of 9 times). 單體從 75 公分高處, X.Y.Z 3 個方向,各 3 回,落於 40mm 厚木板上. | 諧振頻率與消耗電流變化量須在 $\pm 10\%$ 內. 輸出音壓變化量須在 $\pm 10\text{dB}$ 內. |

G. ENVIRONMENT TEST 環境測試

| No. | Item | Test Condition | Evaluation standard |
|-----|----------------------------|---|--|
| 1 | High temp. test 高溫測試 | After being placed in a chamber at +85°C for 240 hours 置於+85°C環境中 240 小時 | Being placed for 4 hours at +25°C, buzzer shall be measured. The value of oscillation frequency/ current consumption should be in ±10% compared with initial ones. The SPL should be in ±10dB compared with initial one. 經測試後，靜置於+25°C（室溫）環境中 4 小時後，諧振頻率與消耗電流變化量須在±10%內。輸出音壓變化量須在±10dB 內。 |
| 2 | Low temp. test 低溫測試 | After being placed in a chamber at -40°C for 240 hours 置於-40°C環境中 240 小時 | |
| 3 | Humidity test 相對濕度測試 | After being placed in a chamber at +40°C and 60±5% relative humidity for 240 hours 置於+40°C，相對濕度 60±5% 環境中 240 小時 | |
| 4 | Temp. cycle test 溫度循環試驗 | The part shall be subjected to 5 cycles. One cycle shall be consist of: 單體承受溫度循環測試 5 次，其循環內容如圖示：  | |

H. RELIABILITY TEST 信賴性測試

| No. | Item | Test condition | Evaluation standard |
|-----|-----------------------------|---|--|
| 17 | Operating life test 壽命測試 | <p>1. Continuous life test 高溫壽命測試(連續) 48 hours continuous operation at +55°C with rated voltage applied. 在+55°C環境下，以額定電壓連續操作 48 小時</p> <p>2. Intermittent life test 室溫壽命測試(間歇) A duty cycle of 1 minute on, 1 minutes off, a minimum of 5000 times at room temp.(+25±2°C) and rated voltage applied 在室溫下(+25±2°C)，以額定電壓操作，通電 1 分鐘/斷電 1 分鐘，測試 5000 次循環。</p> | Being placed for 4 hours at +25°C, buzzer shall be measured. The value of oscillation frequency/ current consumption should be in ±10% compared with initial ones. The SPL should be in ±10dB compared with initial one. 經測試後，靜置於+25°C（室溫）環境中 4 小時後，諧振頻率與消耗電流變化量須在±10%內。輸出音壓變化量須在±10dB 內。 |

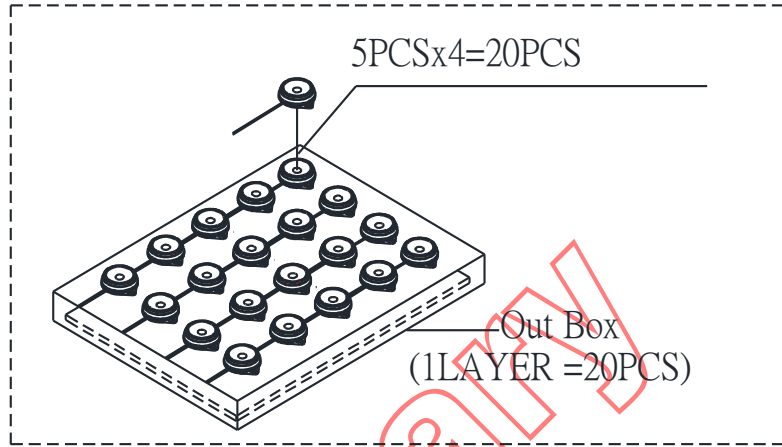
TEST CONDITION.



| | | | | |
|-------------------------------------|---|-----------------------------|----------------------|----------------------------|
| Standard Test Condition 一般測試條件 | : | a) Temperature : +5 ~ +35°C | b) Humidity : 45-70% | c) Pressure : 860-1060mbar |
| Judgement Test Condition 爭議時測試條件 | : | a) Temperature : +25 ± 2°C | b) Humidity : 60-70% | c) Pressure : 860-1060mbar |

I.PACKING STANDARD 包裝規格

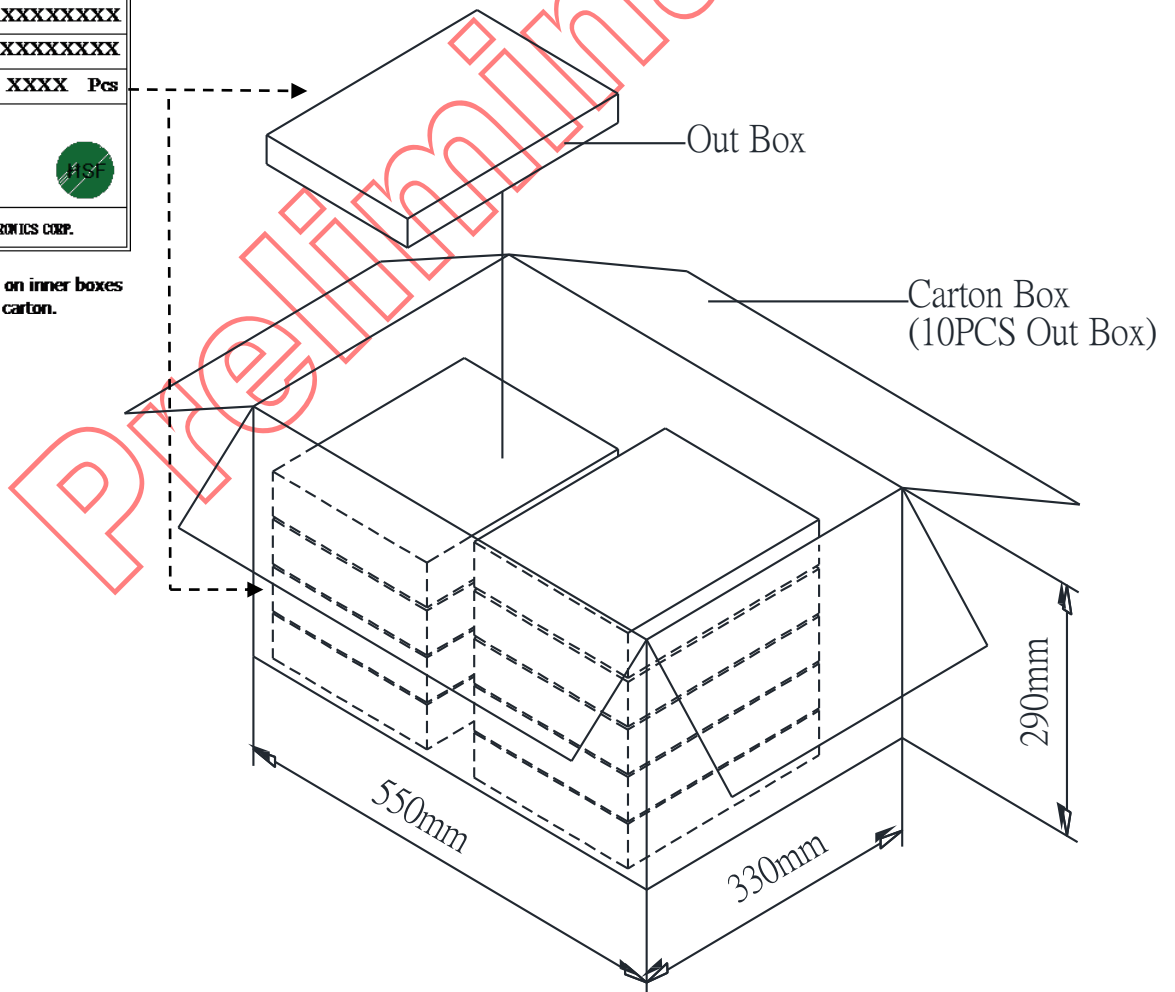
Each minimum package unit of products shall be in a carton box and it shall be clearly marked with Part Number, quantity and outgoing inspection number. There shall be no mechanical damage on products during transportation and/or in storage.

外箱須標示最小包裝單位，並註明產品型號、數量及檢驗批號，必須是物品儲藏或運輸過程中可防止造成損傷的包裝。



| | |
|---|--|
| Lot No. | XXXXXXXXXX |
| Part No. | XXXXXXXXXX |
| Quantity | XXXX Pcs |
| Date: | |
| | WWYY  |
|  | |

* The label stucked on inner boxes and the outer of carton.



| | | |
|------------|-------------------|-----------------|
| Out Box | 310mmx248mmx49mm | 1x20PCS=20PCS |
| Carton Box | 550mmx330mmx290mm | 20PCSx10=200PCS |